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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/671,978 | 09/26/2003 | Yehiel Gotkis | LAM2P438 | 8865 |
| 25920 | 7590 | 04/14/2005 | EXAMINER | |
| MARTINE PENILLA & GENCARELLA, LLP 710 LAKEWAY DRIVE SUITE 200 SUNNYVALE, CA 94085 | | | DAVIS, OCTAVIA L | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2855 | |

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/671,978

Applicant(s)

GOTKIS ET AL.

Examiner

Octavia Davis

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/24/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/26/03 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/8/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because Figs. 12A and 12B are not easily readable. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 1 - 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandhu et al in view of Lehman et al.

Regarding claims 1 – 3, 6, 10, 14 – 18 and 24, Sandhu et al disclose a method for controlling a CMP process comprising a wafer carrier 20 supporting a wafer 10 during a planarization process, the wafer carrier including a sensor 22 (See Col. 5, lines 16 - 55), a computer (See Col. 6, lines 30 - 38) in communication with a sensor which generates a thermal map and a stress relief device 16 responsive to a signal received from the computer, the stress relief device relieving the stress on the wafer (See Col. 5, lines 38 - 40) but does not disclose a sensor configured to detect a signal indicating a stress or a load experienced by the wafer and a plurality of sensors detecting a temperature of the wafer. However, Lehman et al disclose a CMP system for polishing a sample comprising a wafer carrier 512 that supports a wafer 514 and an eddy current sensor and optical measuring arrangement 500 (See Col. 13, lines 10 – 26).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sandhu et al according to the teachings of Lehman et al for the purpose of, utilizing an eddy probe to obtain a measurement of the sample while the sample is being polished (See Lehman et al, Col. 3, lines 13 – 15) and utilizing an optical measurement arrangement to detect a resulting optical beam emanating from the sample (See Lehman et al, Col. 3, lines 37 – 42).

Regarding claims 4, 5 and 22, in Sandhu et al, the stress relief device 16 is a platen (See Col. 5, lines 34 - 40).

Regarding claims 7 and 19, in Sandhu et al, the computing device includes a signal compensation module used with circuitry to control the operational parameters of the CMP (See Col. 6, lines 30 - 38).

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Regarding claims 8 and 11, in Sandhu et al, the wafer carrier 20 supports a substrate over a polishing pad 18, which moves in a linear direction when the wafer rotates (See Col. 5, lines 16 - 25).

Regarding claims 9 and 23, Sandhu et al disclose all of the limitations of these claims except for teachings that the stress relief device includes a fluid supply system capable of delivering a fluid to a portion of a smoother layer of slurry deposited over a polishing pad. However, in Lehman et al, the stress relief device 606 includes a fluid supply system 612 that delivers a fluid 613 to a portion of the slurry 604 deposited over pad 607 (See Cols. 13 and 14, lines 48 – 67 and 1- 23).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sandhu et al according to the teachings Lehman et al for the purpose of, utilizing the slurry to mechanically and/or chemically polish the sample and a fluid pump to generate a constant fluid flow between the optical element and a sample surface (See Lehman et al, cols 13 and 14, lines 59 – 61 and 1 – 9).

Regarding claims 12, 13 and 20, in Sandhu et al, the stress relief device 16 includes a drive motor 26, the motor being capable of reducing one of a rotational speed of the wafer carrier 20 and a linear velocity of the polishing pad 18 (See Col. 5, lines 34 – 45).

Response to Arguments

4. Applicant's arguments with respect to these claims have been considered but are moot in view of the new grounds of rejection.

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Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Boggs et al (6,325,696) disclose a piezo-actuated CMP carrier.


Any inquiry concerning this communication should be directed to examiner Octavia Davis at telephone number 571.272.2176.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Edward Lefkowitz, can be reached on 571.272.2180. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9306.

ED

OD/2855

4/6/05


MAX NOORI
PRIMARY EXAMINER